

LETHAL AND NON-LETHAL EFFECTS: THE NEED FOR REORGANIZATION TO HARNESS THE POWER OF THE REVOLUTION

**A MONOGRAPH
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14. ABSTRACT

This monograph examines the organization of the Australian Defense Forces (ADF) present fire support systems at Brigade and Division/Joint Task Force HQ Levels, in an attempt to explore whether a revolutionary outcome can be made through the reorganization of the present structures. Organization change by itself is insufficient to bring about a revolutionary change like those expected from the Revolution in Military Affairs (RMA). There is little proof currently to suggest that the RMA has actually delivered any substantial discontinuous change to the way militaries conduct planning or operations. The RMA consist of a number of components, only one of these components is organization reform. This monograph explores the notion that the RMA is occurring now and will be realized through the adoption of organization reform, combined with the other components of the RMA, resulting in a discontinuous change in military affairs at the Brigade and Divisional / Joint Task Force Level. The monograph proposes the integration of targeting and information operations (IO) functions of the Brigade and Division/Joint Task Force HQ's, through the formation of an effects coordination center, to harness the technological improvement in C4ISR as well as precision munitions, to fully synchronize lethal and non-lethal effects. This reorganization is expected to achieve an increased staff efficiency, increased situational awareness and focus the effects management and information collection systems to achieve the commanders objectives. This linking of technological improvements and organizational changes will facilitate the enhancement to doctrine and provide the ADF with significant tactical and operational advantages throughout the entire spectrum of conflict, by the enhancement to the decision action cycle. This monograph describes how the adoption of an effects coordination center combined with improvements in technology and changes in doctrine could bring about a revolutionary outcome for the ADF.

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Abstract

LETHAL AND NON-LETHAL EFFECTS: THE NEED FOR REORGANIZATION TO HARNESS THE POWER OF THE REVOLUTION by Maj Philip R. Swinsburg, Australian Army, 56 pages.

This monograph examines the organization of the Australian Defense Forces (ADF) present fire support systems at Brigade and Division/Joint Task Force HQ Levels, in an attempt to explore whether a revolutionary outcome can be made through the reorganization of the present structures.

Organization change by itself is insufficient to bring about a revolutionary change like those expected from the Revolution in Military Affairs (RMA). There is little proof currently to suggest that the RMA has actually delivered any substantial discontinuous change to the way militaries conduct planning or operations.

The RMA consist of a number of components, only one of these components is organization reform. This monograph explores the notion that the RMA is occurring now and will be realized through the adoption of organization reform, combined with the other components of the RMA, resulting in a discontinuous change in military affairs at the Brigade and Divisional / Joint Task Force Level.

The monograph proposes the integration of targeting and information operations (IO) functions of the Brigade and Division/Joint Task Force HQ's, through the formation of an effects coordination center, to harness the technological improvement in C4ISR as well as precision munitions, to fully synchronize lethal and non-lethal effects. This reorganization is expected to achieve an increased staff efficiency, increased situational awareness and focus the effects management and information collection systems to

achieve the commanders objectives. This linking of technological improvements and organizational changes will facilitate the enhancement to doctrine and provide the ADF with significant tactical and operational advantages throughout the entire spectrum of conflict, by the enhancement to the decision action cycle.

This monograph describes how the adoption of an effects coordination center combined with improvements in technology and changes in doctrine could bring about a revolutionary outcome for the ADF.

Preface

The paper has been written with the purpose of exploring the application of lethal and non-lethal effects at both the Brigade and Divisional / Joint Task Force Headquarters level. This paper is intended to be used to inform the Headline Experiment being conducted by the Australian Army. The present brigade 2015 capability concept, being developed under the Headline Experiment, lacks any robust information operations capability. This lack of information operations capability will seriously undermine the ability for commanders to synchronize both lethal and non-lethal effects, and indicates a poor appreciation for the changing nature of warfare. There appears to be a lack of understanding of the capability afforded through a synchronized lethal and non-lethal effects management process, without which the ADF will be limited to lethal response to most situations. The Brigade 2015 structure proposed as at November 1999 shows a misinterpretation of the changing theory of warfare, maintaining the present mental models of geographically specific high intensity conflict and ignoring the increasing complexity and need for non-lethal responses in MOOTW environments. This paper proposes an alternative structure to a component of the brigade and divisional headquarters, in the hope that a further review of the brigade capabilities will be conducted as part of the ongoing Headline Experiment.

Throughout this paper, US Army terms are used when referring to artillery units. This is a function of the initial audience in which the paper is being framed, and is not intended to distract from the overall content of the paper.

Chapter 1

The revolution is here

To know what one can do on the basis of the available means, and to do it; to know what one cannot do, and refrain from trying; and to distinguish between the two—that, after all is the very definition of military greatness, as it is of human genius in general.

Martin Van Creveld

Since the breakup of the Soviet Union and the fall of the Berlin Wall, the global environment for war has dramatically shifted from a bipolar to an uni-polar world. One outcome of this change is an increase in the number of peacekeeping operations conducted by the Australian Army. Between 1972 and 1987, Australia's only substantial overseas deployment was in support of the Multinational Forces and Observers (MFO) in the Sinai. Between 1987 and 2000, the Australian Defense Force (ADF) has deployed to Fiji, Namibia, the Persian Gulf, Somalia, Rwanda, Western Sahara, Bougainvillea, Cambodia and East Timor.¹ These operations, combined with the increasing military technology on the modern battlefield displayed during the 1991 Gulf War and the Kosovo Air War, highlights a characteristic of the changes occurring in the nature of warfare.

It is widely accepted that the nature of future warfare will be fundamentally different, characterized by precision munitions, information systems, high tempo operations, maneuver warfare and speed of response. As militaries around the world attempt to implement lessons from the Gulf War and subsequent operations, major

changes will occur, both in the nature of peacetime competition between states and in the way conflicts are deterred, fought and resolved.

This changing nature of warfare has modified the way that militaries will need to prosecute the full spectrum of operations in the future. Significant changes in warfare have often devalued formerly dominant elements of military power, including weaponry, weapon platforms, and doctrines.² Military organizations that have not adapted in a rapidly changing highly competitive environment have declined, often quite rapidly.³

To date, the majority of the changes that militaries have implemented to maintain relevancy in the new strategic environment has focused upon new weapon platforms and technology. This rapid implementation of technological systems is a process of modernization often referred to as the Revolution in Military Affairs (RMA). A process designed to create a paradigm shift from the industrial-based militaries of the cold war and move them into the highly efficient and effective information age.

Now that the RMA has allegedly been progressing for about a decade, it is difficult to determine whether this paradigm shift or major revolutionary, discontinuous development in military affairs has actually occurred. It may be unfair, however, to blame the RMA for failing to deliver. Instead, the fault to harness the technology of the future may be the result of the failure to recognize the need to change, or the breadth of change required.

This issue of whether the ADF has experienced an RMA is not relevant to this paper. This paper defines what is required for an RMA to take place and explores how organizational change within the ADF, in particular the Australian Army, may result in a significant improvement in the conduct of future operations. The paper asks the question

of whether the present ADF fire support coordinating organization at the Brigade and Divisional Level is suitable for the conduct of full spectrum operations and compatible with the changing nature of warfare. The paper discusses the requirements to combine lethal and non-lethal effects into one controlling staff organization at the Brigade and Divisional level, to focus on effects management, in order to harness the power of the RMA and ensure the ADF maintains relevancy in future full spectrum warfare within the Asia Pacific region.⁴

This paper will inform the ADF experimentation process called the Headline Experiment. Specifically, the organizational changes that need to be considered for the Enhanced Combat Force and potentially the Army After Next structure of the Australian Army in the area of lethal and non-lethal effects management. Proposed changes will be validated against the need to maintain a credible command and control structure able to operate within the existing American, British, Canadian and Australian (ABCA) standardization agreements.

Recognizing Change –Lessons from past RMA’s

For the purpose of the paper Andrew Krepinevich’s definition for the RMA will be used, consisting of three components: new technologies, innovative operational concepts and organization adaptation. An explanation and various definitions plus the ADF’s approach to the RMA is contained in Appendix A.

Krepinevich believes there have been as many as ten military revolutions since the fourteenth century.⁵ Two of the most well known include the Napoleonic Revolution and the Interwar Revolution in Mechanization, Aviation and Information, more commonly known as blitzkrieg.⁶

Napoleonic Revolution

During the Napoleonic era, the industrial revolution allowed the French Army to standardize equipment such as artillery, carriages and fabricate interchangeable parts, to ensure a more mobile Army. This allowed Napoleon's Army to increase their mobility and decrease their transportation and logistical manpower requirements. Major social changes were also harnessed by the military following the French Revolution allowing the introduction of the *levee en masse*. Doctrinal changes included the introduction of skirmishers and the integration of individually aimed fire combined with artillery and volley fire. Light infantry were formed into skirmish lines and cavalry became used as reconnaissance, screening and raiding forces.⁷ Logistics were reduced due to localized foraging, reducing the need for large magazines and long supply trains. Organizational changes included the formation of the Division and Corps. With the improvements in roads, armies were able to march independently but concentrate at the decisive point.

The Napoleonic Revolution was driven by fundamental economic, political and social changes outside the immediate military domain. These forces enabled deep-seated and fundamental transformation of both the nature of warfare and the conduct of warfare.⁸ Napoleons' genius was to integrate the advances in technology, military systems, and military organizations (including his staff systems) to realize a dramatic leap in military effectiveness over the military formations that existed only a short time before.⁹ It took the other European militaries almost an entire decade to recognize the need for change. Napoleon had no decisive technological advantage or better situation awareness over his opponents. Napoleon understood the impact the combination of changes in unit structures and staff processes could have. When combined with the social changes of the time, Napoleon achieved a synergy that others failed to realize.

A major contributing factor to the downfall of Napoleon during the 1813 Campaign and the battle of Leipzig, was that Napoleon, after revolutionizing the style of warfare of his time, failed to recognize the impact of this change on his enemy. He failed to recognize that the spirit in Europe was changing and believed that he was still dealing with the old feudal monarchies, which he had done away with in 1805 –1806.¹⁰

Inter-war Revolution

The inter-war years between World War One and World War Two saw significant improvement in technology such as radio and armored vehicles, except their employment on the battlefield was hindered by the mental models of senior leaders, expecting the next war to be similar to the last. The French Maginot Line completed in 1934, unduly influenced the interpretation of the future warfare and the importance of mechanization in Europe, with French Generals believing that “the tank was solely an infantry-support weapon.”¹¹ The difference however was that the German Army were the first to employ tanks, radios and aircraft in new ways in 1940, even though the technology was similar with their European contemporaries and had been available since World War One. This revolutionary employment of combined arms was the result of the strategic setting imposed upon Germany from the end of World War One, requiring innovative changes with limited resources. The situation led to the requirement for a series of rapid offensive actions to defeat the enemy quickly with an emphasis on coordinated firepower mobility and protection.

The German Army formed new units based upon combined and supporting arms formations, complementing them with aircraft for close air support, in order to paralyze the decision cycle of the enemy enabling the conduct of simultaneous operations. The

German Army employed new operational concepts and doctrine, incorporating deep penetrations on narrow fronts and air superiority. They also employed the *auftragstaktik* completely changing the command climate at the lower levels.¹²

The Inter-war revolution was absence of any superior technological advantage to either side. Both the Germans and the Allies were equipped with the tank, airplane and radios. The French tank divisions before World War Two were very good, however they lacked the organizational capability that was the key to the German success. Blitzkrieg involved a fundamental change in the nature of warfare. Cooper states that this change did not emphasis the technological, but more organizational and operational innovations. RMA's that are not dependent upon costly technology are not resource-intensive, and historically, has often been created by the defeated in the previous conflict. RMA's which emphasis organizational and doctrinal changes do not rely upon long development and costly acquisition cycles, offering the best opportunity to address near and mid-term problem.¹³ All militaries with budgetary limitations should heed this statement.

The issue of whether an RMA is taking place is not relevant. The relevant fact is that the theory of warfare is changing and technology continues to evolve. Technology is reducing any perceived advantages that may have existed in the past between the ADF and its neighbors. Previous RMA's have harnessed the technology that presently existed and used it to the military's advantage. The ADF's major weapon systems such as the F-111, FA-18 Hornet, L1 Leopard tank, UH-70A Blackhawk and 155mm artillery systems have all been in service for many years and will continue to be in service until at least 2007 and beyond. These weapon systems are what the ADF will use on operations between now and the attainment of the ECF and beyond. Even with rapid advancements

in communication and sensors, shaping and decisive operations will still be conducted with 1980's combat systems. Leveraging a systems approach to achieve a revolution in military operations will therefore rely upon organizational change and changes to procedures and doctrine and not major weapons systems over the near to mid term. Technology evolves but organizations are the ones that perform revolutions.

One of the areas where this organizational enhancement can be potentially realized is through the combination of the lethal and non-lethal effects systems in the ADF. The ADF is a small force and does not have a large number of weapon systems. The ADF relies upon maneuver warfare and the use of the available forces to achieve decisive operations. One feature of the changing nature of warfare is the increasingly important use of information operations and the application of non-lethal force. Harnessing the limited firepower available to the ADF, combined with non-lethal effects, appears to offer the ADF with the ability to ensure relevancy throughout the entire spectrum of operations and use the limited firepower capability it has more efficiently and effectively.

The Royal Australian Artillery has not deployed on operations to perform artillery-related functions since the Vietnam War. Yet, the number of operations that the ADF has conducted since 1987 has risen dramatically. The result is either the employment of artillery units in tasks which they have not been trained; conversely the artillery capability has become so specialized to only allow its employment in one end of the threat spectrum.

The combination of the staff processes in the artillery headquarters at the Brigade and Divisional Headquarters for lethal effects, with the planning and execution of non-

lethal effects, normally associated with Information Operations, will enhance the ability for these headquarters to adapt to the changing nature of warfare. A combined staff process incorporating both lethal and non-lethal effects planning and execution will align the staff functions in the headquarters and potentially achieve an exponential increase in the decision-making capability of these headquarters.

Of the numerous RMA's which have occurred throughout history the ADF should take note of the Napoleonic and Inter-war Revolution which occurred. Both occurred in an environment of technological parity; both occurred during a period of relative peace; and both emphasized organizational and doctrinal changes using existing technology. The changing nature of warfare and the increasingly possibility of the ADF being involved in warfare across the full spectrum, calls to question whether the organizations that currently exist will be adequate for the future.

The Regimental Headquarters in an artillery organization has not been fundamentally reviewed since its inception, as early as the 1800's. Whilst the organization has evolved to incorporate the increasing complexity of major conflict and dispersed operations, its ability to fully synchronize the increasing importance on non-lethal effects on the modern battlefield could be questioned. As the tempo of operations increases with Australia becoming more involved in full spectrum operations, organizations will need to be multi-skilled and flexible in their approach to tasks. The combining of lethal and non-lethal effects, into one organizational function, whilst maximizing the existing legacy structures, and at the same time updating doctrine and procedure will allow the ADF to potentially achieve, albeit at a small scale, a discontinuous development in military affairs, not dissimilar to those achieved by Napoleon and during the inter-war revolution.

Notes

¹ Australian Department of Defense, *Defense Review 2000 - Our Future Defense Force*, Discussion Paper June 2000, p 6

² Weaponry is defined as weapons considered as a group and includes the design and production of weapons.

³ Andrew F. Krepinevich, *Cavalry to Computer: The Pattern of Military Revolution*, The National Interests, Fall, 1994, p.36

⁴ Full spectrum warfare refers to the conduct of warfighting and military support operations as detailed in the Land Warfare Doctrine 1: *Fundamentals of Land Warfare*, Annex B, 1998.

⁵ Krepinevich, *Cavalry to Computer: The Pattern of Military Revolution*, p 31

⁶ Ibid., p 36

⁷ Ibid, p 34

⁸ Cooper. Jeffrey, *Another View of the Revolution in Military Affairs* (Carlisle Barracks, PA: Strategic Studies Institute, July 15, 1994), p 21.

⁹ Krepinevich, *Cavalry to Computer: The Pattern of Military Revolution*, p 34.

¹⁰ David G. Chandler, *The Campaigns of Napoleon*, MacMillan Publishing Company, New York, 1966, p 940.

¹¹ Len Deighton, *Blitzkrieg from the rise of Hitler to the fall of Dunkirk*, Ballantine Book, NY, 1980, p 175.

¹² Andrew Krepinevich and Michael Vickers, "Perspective on the Revolution in Military Affairs," HTML, www.csbaonline.org: Centre for Strategic and Budgetary Studies, 17 August 2000, p 2. The concept of Auftragstaktik or "mission tactics" is to do without question or doubt whatever the situation required. Omission and inactivity is considered worse than a wrong choice of expedient. Disobedience of immediate orders was not inconsistent with this philosophy, where the attainment of the commanders intent is paramount to the attainment of the mission.

¹³ Cooper, *Another View of the Revolution in Military Affairs*, p 21

CHAPTER 2

LETHAL AND NON-LETHAL TARGETING

You cannot solve today's problems with the same kind of thinking that created them.

Albert Einstein

The term non-lethal is new to the military lexicon and represents tangible evidence that the theory of warfare is changing. As technology increases, systems such as improved computers, fire control systems and navigation systems, make it possible to improve the level of accuracy for the delivery of munitions. A single aircraft is able to perform the mission that took an entire squadron to accomplish in World War Two. This growing ability to be precise and discriminate between military and civilian targets has increased the ability to deliver lethal munitions with significantly reduced civilian and military casualties as well as reduce collateral infrastructure damage. The ability for a single aircraft to destroy a bridge, without destroying the nearby village, is an example. The increasing number of peacekeeping operations and the political requirement to reduce collateral damage is increasing the requirements for non-lethal effects. The ability to define non-lethal targeting and apply non-lethal effects to what has traditionally been concerned with the kinetic destruction of targets is causing modern militaries some concern.

Defining Non-Lethal Effects in Targeting

The ADF has no definition for non-lethal or non-lethal effects, yet use the term in a number of joint and single service publications.¹ To provide clarity to the discussion on non-lethal effects it is important that the term is accurately defined. According to Webster's Dictionary the term lethal is defined as "cause or able to cause death".² Non-lethal therefore is the antithesis of this meaning, to be unable to cause death. If this simplistic definition of non-lethal is used, it provides context to the doctrine that presently exists on the application of both lethal and non-lethal effects. This paper will limit discussion to the definition of non-lethal effects and how it is applied to existing doctrine in targeting operations.

Australian Defense Force Publication (ADFP) 6, *Operations*, indicates that the most successful plans involve the combination of both the lethal and non-lethal application of force to apply the most appropriate mix of response systems to achieve a desired effect.³ This document goes further to add that response systems should be linked to appropriate sensors to achieve the desired effect.⁴ The combining of lethal and non-lethal effects is therefore a desired product of targeting operations. The combination of effects, both lethal and non-lethal, produces the most appropriate response in accordance with the commanders intent and concept of operations.

Unfortunately, while referring to both lethal and non-lethal effects, Australian doctrine has difficulty in truly defining what it means by non-lethal effects. Reference is made to the use of both lethal and non-lethal forces to achieve, destruction, neutralization or suppression.⁵ These terms have traditionally been associated with the lethal application of force in the past. These terms are not descriptive enough for the introduction of a

much broader scope of non-lethal effects, brought about by the awareness of information operations (IO) which is traditionally associated with non-lethal effects.⁶ Also the inference of the term non-lethal force implies the use of some form of non-lethal weapon system and does not fully address the aim, which is to have a non-lethal effect. Non-lethal effects can be achieved by any means available provided the effect is non-lethal. This includes the possibility of using kinetic or lethal systems to bring about a non-lethal effect. Examples can include the conduct of a firepower demonstration to prevent a belligerent force from interfering with Peacekeeping operations. Other examples include the use of smoke or illumination projectiles from artillery, to indicate to the belligerent that the friendly force has the ability to engage them with artillery if they continue with their actions, or the use of precision guided air delivered munitions to destroy unoccupied high value targets. The desired effect is a change in behavior in the target either resulting in changed movement patterns or reducing hostilities. The use of lethal or kinetic force to achieve a non-lethal effect will be referred to as kinetic non-lethal targeting.

Confusion about the way to apply non-lethal effects has also added to the debate as well as the difference between non-lethal effects and non-lethal weapons. In the Air Supplement to the Australian Defense Force Publication (ADFP) Number 6 *Operations*, the Royal Australian Airforce (RAAF) refer to air support operations with airlift and reconnaissance as being ways of achieving non-lethal effects.⁷ The RAAF have obviously confused the means with the ends. A non-lethal effect is designed to alter the outcome of the target using non-lethal means. The carriage of personnel in a non-hostile aircraft or conducting reconnaissance mission is not a non-lethal effect; it simply delivers troops or conducts reconnaissance, the targets has not been altered in any way. The

presence of the disembarked troops and the subsequent reaction by the belligerent to the troop deployment is the effect. The aircraft is purely a delivery system like artillery. The effect is the change to the target not the systems used to deliver it.

Further confusion comes from articles that refer to the use of Special Forces in manning outposts, assistance with local populations, information collection, and negotiation and VIP protection, as non-lethal means.⁸ Only when the means designated to be used to achieve a non-lethal effect has a planned expectation of not resulting in human fatality, then the means can be determined to be non-lethal. Non-lethal effects can be defined as a planned event designed not to result in human fatality but changes the expected outcome of the target as a direct result of an applied effect to meet specific objectives. A detailed list of non-lethal effects will depend upon the target and the commanders targeting objectives. An example of non-lethal systems used in the targeting process can include, but is not limited to the use of psychological operations, electronic warfare, civil affairs, deception, and public affairs. A non-lethal event may include the use of firepower demonstration including all combined and joint assets.

Using this framework of lethal, kinetic non-lethal and non-lethal effects, the traditional application of targeting methods need to be reviewed to ensure that the most appropriate effect is being used to achieve the commanders intent commensurate with the changing nature of warfare.

Targeting

Targeting refers to the “process of identifying targets for possible engagement and determining the attack system to capture, destroy, degrade or neutralize them.”⁹ This ADF definition is too limited in scope and does not accommodate the application of

modern non-lethal effects. Whilst it clearly refers to the conduct of targets suitable for prosecution by kinetic targeting, the only non-lethal systems that could be used in this definition are electronic warfare and potentially laser dazzle weapons.¹⁰ The ability for psychological operations, deception or civil affairs to capture, destroy, degrade or neutralize is extremely difficult to measure or not applicable to the definition. The NATO definition of targeting being a “process of selecting targets and matching the appropriate response to them taking into account of operational requirements and capabilities ” is closer to the needs of the integration of both lethal and non-lethal effects.¹¹ The Australian Army Training Information Bulletin number seventy-seven (TIB 77), *Tactical Targeting*, states that targeting should ensure the appropriate and timely prosecution of targets in accordance with the intentions of the commander.¹² The most appropriate definition of targeting however, is in the draft version of U.S. Joint Publication 3-60 Targeting, which states, “targeting is the process to detect, select and prioritize targets, match the appropriate action, and assess the resulting effects based on the commanders objectives, guidance and intent.”¹³ This definition is the closest definition to the true meaning of targeting and will be used in this paper.

The Lethal and Non-Lethal Effects Spectrum

The spectrum of conflict changes targeting objectives from primarily non-destructive options during peace to destructive options during war. With this change in spectrum, the targeting objectives will also change. Figure 1 shows the lethal and non-lethal effect spectrum and how throughout the entire spectrum lethal and non-lethal effects will need to be planned at all times.

During peacekeeping operations, target categories are likely to be key adversary civil and political capabilities and functions. High Payoff Targets (HPT) will be primarily civilian targets such as government leaders, political groups and the local populace. Non-lethal effects will predominate, although lethal effects will always be planned.¹⁴ During warfighting, lethal effects predominate with targets such as Air Defense systems and

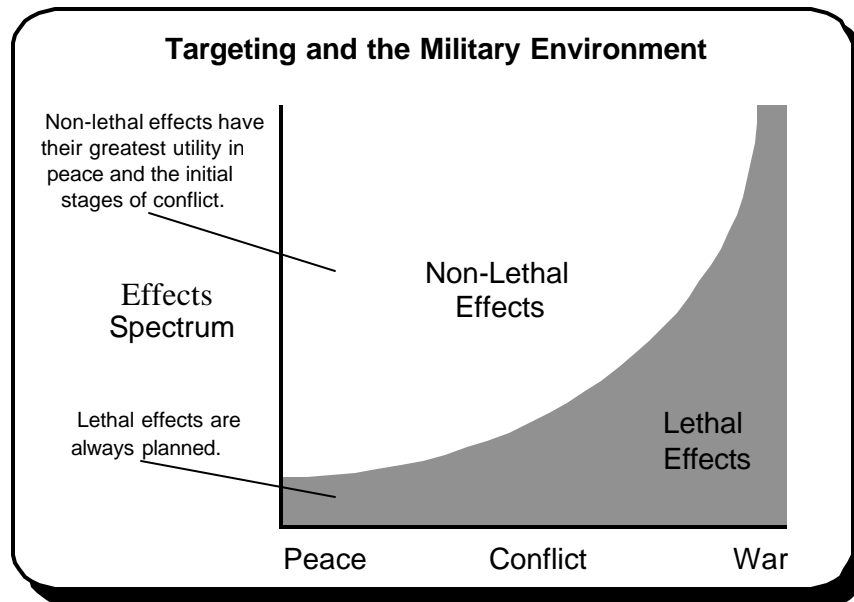


Figure 1. Lethal and Non-Lethal Effects Spectrum

Source: US Army Land Information Warfare Activity, *LIWA Information Operations Handbook* (Draft), October 1998, Annex D, 3.

Command, Control, Communication and Intelligence systems being targeted.¹⁵ Non-lethal effects will still be conducted during warfighting, not just during military support operations. Non-Lethal effects will still need to be planned and used to enhance lethal effects.

Past problems associated with integrating lethal and non-lethal effects

The integration of lethal and non-lethal effects into the targeting process has suffered over the past years from a lack of understanding of the true nature of non-lethal

effects. This understanding was clouded by discussion about non-lethal weapons, a poor definitions of targeting, and uncertainty about the capabilities of non-lethal effects and how they could contribute to a system that has evolved principally using kinetic energy.

Another problem facing the ADF is not that lethal and non-lethal effects need to be combined to achieve the most appropriate action, but which organization at the Brigade and Divisional Headquarters is responsible for such actions. No staff cell or personnel are currently tasked to perform the IO function at the Brigade or Divisional Headquarters, yet many documents discuss the need for a combined lethal and non-lethal approach to effects management.

The After Action Review for Exercise RAINBOW SERPENT, an exercise with a military operations other than war setting (MOOTW) involving American, British, Canadian and Australian (ABCA) forces, concluded that the Australian Divisional Headquarters (DJFHQ) “did not have enough trained staff to coordinate engineers, CIMIC, joint (air force and navy), and information operations....the absence of an agreed IO doctrine created difficulties in the planning and execution of IO during the exercise.”¹⁶ Exercise RAINBOW SERPENT demonstrated the need for an IO architecture in the coalition force allowing the planning, preparation and execution of IO; without an IO architecture, a “coordinated force-wide approach was not possible, demonstrating the need for IO to be integrated into the total planning process.”¹⁷

Until the recent deployment of Australian forces to East Timor, no IO architecture had yet been established in either the Brigade or the Divisional Headquarters. Australia was the lead nation in a multi-national operations with a high emphasis towards non-lethal effects, very similar to the MOOTW scenario depicted on Exercise RAINBOW

SERPENT. The IO cell formed for Operation STABILIZE, the Australian led peace-enforcement mission in East Timor, was formed immediately prior to deployment from staff with no prior exposure to information operations.¹⁸ Whilst the IO campaign was subsequently planned and implemented through a very austere IO cell (one person), the IO function continues to be hampered by a lack of trained IO staff and headquarters structure. This limited the ability to integrate lethal and non-lethal effects throughout the entire spectrum of conflict.

The present organizational structures within headquarters have evolved to be able to prosecute targets with lethal means, mainly with the RAAF, artillery and maneuver. The combining of electronic attack into these systems was simple enough to include as another weapon system. The overall ends achieved were not dramatically altered, with targets either destroyed or neutralized aided by electronic attack. The default option has always been for lethal effects to take priority over non-lethal.

In the past, targeting has concentrated on weapon systems called target sets which can be easily distilled down into identifiable and tangible targets. The process has not focused upon the capability of the threat, with less definable target categories. Changing from target sets to capabilities and approaching the target from the effects desired, not what is able to be struck, will make better use of the limited strategic, operational and tactical assets the ADF has available.

The lack of doctrine in this area only continues to maintain the status quo. The adoption recently of Information Operations as a stand alone Battlefield Operating systems in LWD 1, without a revision of staff functions and organizations maintains a lack of understanding as to how these capabilities will be synchronized on the battlefield.

Present doctrine emphasizes the management of weapons systems to achieve an effect. Future operations will dictate that effects are managed and then weapon systems are chosen to ensure they are appropriate. The desired ends are the effects that achieve the commanders plan and not the result of the systems employed.

Information Operations

The ADF defines Information Operations (IO) as “actions taken to defend and enhance one's own information and information systems and to affect an adversary's information and information systems”.¹⁹ Whilst this definition exists, no overarching IO doctrine exists in the ADF. IO is an emerging capability within most militaries. The 1996 version of the US FM 100-6 Information Operations, defines IO as containing three parts:

1. **Operations**: which contained Command and Control Warfare, both attack and protect, with a link to the effect provides by synchronized civil affairs and public affairs operations;
2. **Information Systems**: which includes the communication and computer systems architecture, integration and global connectivity; and
3. **Relevant Information and Intelligence**: which included the collection, processing and dissemination of information.²⁰

This structure has subsequently changed over the short period of time this field manual has been in service, indicating the dynamic nature of information operations, and now includes just two areas; Information Operations and Information Management, under the higher requirement for information superiority.²¹ Latest US Doctrine yet to be released in the draft version of FM 3-0 Operations (Formerly FM 100-5), indicate IO to be part of information superiority, which consist of Intelligence Surveillance and Reconnaissance, Information Management and Information Operations. For the purpose of this paper the component of information operations will include:

1. Operations Security
2. Military Deception
3. Psychological Operations
4. Electronic Warfare
5. Physical Destruction
6. Civil Affairs
7. Public Affairs²²

The components of Public Affairs and Civil Affairs are still considered related activities, but separated from the other components because they do not manipulate or distort information, with their effectiveness coming from their credibility. Non-lethal effects can include both these IO elements and any other action or systems that can bring about a non-lethal effect upon a given target or system of targets.

Targeting and Non-Lethal Effects – Information Operations

The ADF use two targeting procedures for the prosecution of lethal and non-lethal targets. These procedures are detailed for the Australian Army in TIB 77, and equate to a four-step process described as Decide, Detect, Deliver and Assess (D3A).²³ The Joint Targeting process anticipated to be adopted by the ADF in ADFP 23 is the six-step airforce targeting cycle. The Joint Targeting publication is still in draft form and has yet to be published. This paper is only concerned with the tactical targeting process, as this is the process most applicable to operations at the Brigade and Divisional level.²⁴

The organization primarily responsible for the conduct of targeting at the Brigade and Divisional level is the Joint Offensive Support Coordination Center (JOSCC). At the brigade level, the JOSCC is provided from members of the headquarters battery and regimental headquarters of the direct support field artillery battalion. At the divisional level, the JOSCC staff is a separate component of the divisional headquarters staff with members permanently assigned to the headquarters.²⁵ The JOSCC are responsible for the

coordination of all forms of lethal effects, traditionally associated with artillery, fixed and rotary winged air support and naval fire support. In the past the integration of electronic warfare (EW) usually occurs on an adhoc basis. The result is an emphasis towards the lethal aspects of targeting.

Information operations targeting is currently not synchronized with lethal effects with the planning of IO depended upon staff expertise on the headquarters. The current Australian Operation STABILIZE in East Timor was the first time the ADF has put into practice a complete IO campaign.²⁶ The components of IO are usually separate from an overall IO plan, usually with emphasis toward those capabilities which the intelligence personnel have some expertise in, such as psychological operations. Public affairs in the past are normally controlled by the commander's staff and are often more towards public information than adherence to a synchronized IO effort. There is presently no clearly defined doctrinal IO architecture to ensure that both lethal and non-lethal targeting objectives are synchronized.²⁷

Combining IO into the existing D3A targeting process provides a mechanism to remove the barriers that presently exist concerning the implementation of IO, which are still along function lines with lethal effects the domain of artillery and non-lethal effects or IO the domain of the intelligence corps. By using a single targeting process incorporating all lethal and non-lethal effects available to the commander will ensure that all aspects of the operation are coordinated and combined to achieve the commanders intent. Additionally, as the existing targeting process gains in acceptance, this will enhance the ability of IO to be visible to the maneuver commander. Two recent examples of where IO targeting has been performed using the D3A methodology include The

Australian operational STABILIZE in East Timor and the US Military deployment in Bosnia with Task Force Eagle.

Integrating Targeting and Information Operations

Task Force EAGLE is the US Army element overseeing the implementation of the Dayton Peace Accord (DPA) in Bosnia. Task Force EAGLE uses IO to attack the legitimacy of elements of the former warring factions leadership who attempted to block the further implementation of the DPA. Task Force EAGLE's IO campaign targeted the adversary leadership decision-making and Command and Control systems, giving the Stabilization Force (SFOR) the "potential to control the adversary's decision-making tempo and even cause it to collapse...by targeting the popular support base of the adversary leadership and persuading the general population to support the DPA, SFOR and Task Force EAGLE were able to achieve their objectives.²⁸ To achieve these objectives, Task Force EAGLE used the standard D3A targeting methodology adopted by the ADF. Task Force EAGLE as well as the current ADF operation in East Timor found that "IO could be planned and executed in accordance with the sound principles of targeting and response options, of which IO was a non-lethal form."²⁹ Appendix B provides an example of the integration of lethal and non-lethal effects conducted as part of Task Force EAGLE , and describes how the IO planning and Targeting process are closely aligned.

Summary

Exercise Rainbow Serpent in October 1998, identified the need for a dedicated IO architecture within the Australian Divisional Headquarters. Specifically it stated that "to

fully coordinate and take advantage of the capabilities of subordinate formations, the lead nation headquarters must have sufficient trained staff to address all of the functional areas represented by subordinate formations. DJFHQ did not have enough trained staff to coordinate engineers, CIMIC, joint (air force and navy), and information operations.”³⁰

The recent deployment by the ADF on Operation STABILIZE to East Timor, highlighted the need for such a staff function. This function was performed by the JOSCC in DJFHQ, with the personnel responsible required to conduct on the job training before and during the deployment. This outcome with the JOSCC performing the lethal and non-lethal targeting function (primarily non-lethal), is the same staff cell responsible for the targeting effort in Bosnia with the Task Force EAGLE . “The evolution of the standing IO cell within the Divisional Fire Support Element occurred simultaneously with the gradual de-emphasis on lethal fires as the general situation and SFOR interactions vis-a-vis the Entity Armed Forces normalized. The Divisional Commander selected the Deputy Fire Support Coordinator not only because of the decreased emphasis on lethal fires, but also because IO’s targeting methodology mirrors the lethal fires targeting methodology used by the Field Artillery.”³¹

The need for a dedicated staff function, already trained in the D3A targeting process, combined with the de-emphasis in lethal targeting requirements during peace support operations, provides the potential for a fundamental change in the way the ADF has prosecuted targeting in the past. Combined with the need to maintain the ability to plan and execute lethal fires throughout the entire spectrum of operation as per Figure 1, the JOSCC at Brigade and Divisional level are ideally suited to perform this task. This is supported by operations that are being conducted now, in both Bosnia and East Timor.

With a 900 percent increase in the number of deployments undertaken by the ADF since 1987, the need for a dedicated staff cell responsible for the coordination of both lethal and non-lethal effects at the Brigade and Divisional level is likely to increase. The changing nature of warfare and the validation of the procedures conducted during Operation STABILIZE and Task Force EAGLE, present the ADF with an opportunity to revolutionize the way it conducts effects based planning and coordination. A conference on the Revolution in Military Affairs conducted by the Australian Defense Studies Center (ADSC) in Canberra over 27-28 February 1996 concluded that “the real revolution is in the emerging roles for the military at both ends of the conflict spectrum.”³² This highlights the need for a broader approach to effects management than in the past, with the potential of offering a revolutionary outcome.

The integration of the staff responsibilities within the Brigade and Divisional headquarters responsible for both lethal and non-lethal fires would capitalize on the common doctrinal base that already exist. Additionally it would utilize existing staff personnel and functions that are presently only fully harnessed when the spectrum of operations reaches warfighting. A common staff responsibility for lethal and non-lethal effects will allow the ADF to attain the level of doctrinal integration of lethal and non-lethal effects that is only currently talked about, enhancing the overall capability of the Brigade and Divisional headquarters.

The requirement therefore is for the ADF to adopt a synchronized effect coordination process through the utilization of existing legacy doctrine and structures. The outcome will be a truly synchronized effects coordination process that fully harnesses the power of both spectrums of warfare; utilizes the employment of the artillery staff more effectively;

and will enable a discontinuous improvement in the way the ADF prosecutes targets. Maintaining the existing dysfunctional staff processes for the coordination of lethal and non-lethal effects and failing to identify the need to change will seriously hinder the development of the Headline Experiment. More than technological innovation needs to be explored if the ADF is to continue to move ahead in these inter-war years.

Notes

¹ Australian Department of Defense, ADFP 101, 1994 edition updated in ADEL 2000 [CDROM] (Headquarters Training Command, Sydney, 2000). The term is also widely used in ADFP 6 Operations, ADFP 9 Joint Planning, ADFP 19 Intelligence, Draft ADFP 23 dated November 1998, and TIB 77 Targeting. This does not represent an exhaustive search of the term, but indicates where the term is used without accurate definition.

² Webster's Dictionary, The New Lexicon Webster's Dictionary of the English language, encyclopedia edition, 1995, p 568.

³ Australia Department of Defence, Doctrine Publication, *ADFP 6 Operations*, Chapter 3, p 3.44.

⁴ The term effect is defined as the tactical, operational or strategic level outcomes that functions are intended to produce. Webster's Dictionary defines them as "the result by a cause". Webster's Dictionary, The New Lexicon Webster's Dictionary of the English language, encyclopedia edition, 1995, p 299. Effects are the result of military action against a target by either lethal or non-lethal means.

⁵ Department of Defense, *ADFP 6 Operations*, Chapter 3, p 3.44

⁶ The conduct of Electronic Warfare in the past has been referred to as a component of Command and Control Warfare (C2W). C2W has been the primary means of non-lethal effect used by the Artillery and RAAF in the past. C2W is one of many capabilities available to the commander as part of the broader capability of Information Operations. The understanding of the capability of Information Operations is still not widely known or understood in the ADF due to the lack of doctrine and training on the subject. This is the heart of the problem with the understanding of non-lethal effects and how to combine them with lethal effects.

⁷ Australia Department of Defence, Doctrine Publication, *ADFP 6 Operations - Air Supplement* (Headquarters Training Command, 2000), ADEL CDROM, Chapter 3, p 3.6

Notes

⁸ Brig J J. Wallace, "Special Forces in Operations Short of War," *Combat Arms Journal* 2, 1995 (ADEL CDROM 2000).

⁹ Department of Defence, *ADFP 101 Glossary*.

¹⁰ Laser Dazzle Weapons may cause damage to optical sensor as well as the optic nerve of a human, but will not result in death.

¹¹ Department of Defense, *ADFP 101 Glossary*.

¹² Australia Department of Defence, doctrine Publication, "Training Information Bulletin Number 77," *Tactical Targeting* (Headquarters Training Command, 1998), ADEL CDROM 2000: 1.3.

¹³ US Department of Defence, draft Doctrine, "JP3-60 Joint Doctrine for Targeting," *Preliminary Coordinating Draft* (12 November 1999), I-2.

¹⁴ Land Information Warfare Activity, handbook, "Information Operations Handbook," (Fort Belvoir, VA: US Army Land Information Warfare Activity, October 1998), Draft, Annex D, 3.

¹⁵ Warfighting is the term used in the Land Warfare Doctrine1: The Fundamentals of Land Warfare, and is used in conjunction with Military Support Operations and Shaping. Warfighting is used to depict a high intensity level of conflict between two parties.

¹⁶ Lt Col A M Hayward, "Exercise Rainbow Serpent 1998," *Chief Evaluator's Report*, HTML, <http://leav-err.army.mil/>: American British Canadian Australian Primary Standardization Office, para 24

¹⁷ Ibid.

¹⁸ Kent Beasley, "A Staff Paper on Information Operations During Operation STABILIZE," (Deployable Joint Task Force Headquarters, July 2000), 1.

¹⁹ Australian Department of Defense, ADFP 101.

²⁰ US Department of Defence, "FM 100-6 Information Operations," p2-3 to 2-8.

²¹ ABCA Primary Standardisation Office, doctrine Publication, "Coalitions Handbook," (Arlington, VA: Primary Standardization Office, 11 May 1999), 4-5.

²² This list is taken from the LIWA Handbook (draft), October 1998, page 4-3. This list is similar to that used by the ADF.

Notes

²³ Department of Defense, "Training Information Bulletin Number 77," 1-1.

²⁴ Additional information can be obtained about the 6 step RAAF targeting process from US FM 6-20-10, Appendix E. Whilst the 1st Divisional headquarters is also the Deployable Joint Force Headquarters, the D3A targeting process is more applicable at this level, but to the majority of systems likely to be used in the targeting process will be Army assets, with RAAF only able to provide periodic support.

²⁵ The Australian Divisional Headquarters (Headquarters First Division), located at Gallipoli Barracks in Enoggera Queensland, is dual rolled into as Headquarters 1st Division as well as a Deployable Joint Force Headquarters (DJFHQ). This is why the staff on the divisional headquarters is referred to as joint staff. DJFHQ was designed to be able to operate at both the tactical and lower operation level of warfare, commanding a number (up to 5) of Joint Task Forces based upon Brigade sized formations.

²⁶ Beasley, "A Staff Paper on Information Operations During," 1.

²⁷ Ibid, p 2.

²⁸ Centre for Army Lessons Learnt, "Task Force Eagle Information Operations," *CALL Newsletter* (US Army Training and Doctrine Command, Fort Leavenworth.) 99-2, Jan 99 (January 99): 8

²⁹ Beasley, "A Staff Paper on Information Operations During," 2.

³⁰ Lt Col A M Hayward, "Exercise Rainbow Serpent 1998," *Chief Evaluator's Report*, HTML, <http://leav-err.army.mil/>: American British Canadian Australian Primary Standardization Office, p24.

³¹ Robert Cpt Curriss and Marc Romanych, "Integrating Targeting and Information Operations in Bosnia," chap. in *Field Artillery*, July-August 1998 (Fort Sill Oklahoma: US HQDA, 1998), 31.

³² Ltc Thomas Keith, "A Revolution in Military Affairs," *Newsletter of the Directorate of Army Research and Analysis* (Canberra Australia) March 1996, 5 (March 1996.): 2

Chapter 3

Effects Coordination Center

Traditionally, organizations attempt to surmount the difficulty of coping with the breadth of impact from decisions by breaking themselves up into components. They institute functional hierarchies that are easier for people to “get their hands around.” But, functional divisions grow into fiefdoms, and what was once a convenient division of labor mutates into the “stovepipes” that all but cut contact between functions. The result: analysis of the most important problems in a company, the complex issues that cross-functional lines, become perilous or nonexistent.

Peter M. Senge

Knowledge Edge

In 1998, the publication LWD1 introduced a concept to the ADF called the knowledge edge, brought about by the increased use and reliance upon information technologies. The knowledge edge, as determined by LWD 1, is a process that begins with the processing of information and ends with a decisive response in accordance with the commanders' intent. The knowledge edge will enable the ADF to capitalize on the intellectual capacity of the Australian society and ADF, coupled with improvements in information systems and communication, to be able to make better decisions faster than any adversary. Information will be acquired through:

Command, control, communication, and computer systems, and intelligence, surveillance, and reconnaissance systems, by the conduct of IO and through professional mastery.¹ Analyzing and fusing this information generates intelligence and situational awareness. Situational awareness is the knowledge of the operational environment required to gain the level of understanding necessary to achieve decision superiority, which in turn enables decisive action. Effective shooter links are required throughout this process.²

It is important, therefore, to explain briefly the relationship between the attainment of the knowledge edge and how a more effects orientated staff structure within the JOSCC, can help in attaining and maintaining the knowledge edge.

IO and the Knowledge Edge

The knowledge edge describes the conduct of the information acquisition process being through the conduct of IO. It has already been established that IO forms the major component of the non-lethal effects available at the tactical, operational and strategic level, not including the use of kinetic targeting systems for a non-lethal effect. Through the offensive and defensive components of IO, this function efficiently synchronized with the overall targeting effort and commanders intent, will protect the ADF information systems and allow effective targeting of the adversary. IO will therefore facilitate the attainment of situational awareness increasing the potential for understanding, through the knowledgeable application of the targeting process.

Sensor to Shooter Links and the Knowledge Edge

Sensor to shooter, or as some now refer to as Sensor to Actor links, is a system of responses based upon a network centric warfare concept which is enhanced through a robust command, control, computer and communication (C4) system. It is designed to increase response from the time information is collected to the response or action being taken to achieve an effect. This concept was designed to increase the response time from an acquisition of a target to the destruction of that target, usually through lethal means. One of the first such Sensor to Shooter systems was the US Tactical Fire Net (TACFIRE), linking the Firefinder radar systems to dedicated counter battery artillery. The underlying assumptions to this concept are:

1. Collection systems will provide an accurate location and description of the target;
2. The immediate response is to have some form of lethal effect upon the target;
3. There exist a communication link between the sensor and the shooter; and
4. Any staff function to hinder the flow of information and response is to be avoided.

With the changing nature of warfare, the ability to detect and engage targets immediately throughout the entire spectrum of conflict, as depicted in Figure 1, will by necessity require both lethal and non-lethal responses. Therefore whilst the Decide phase of the targeting cycle determine what targets will be engaged (lethally and non-lethally) and how to respond to them, the nature of warfare will determine that responses will require some form of filter. The ability to respond with lethal response will be limited to the extreme right of the spectrum in Figure 1.

With the dispersed nature of operations in Northern Australia and the expansion of the area of operations to include involvement in the Littoral regions to Australia's north, the distance between intelligence, surveillance, reconnaissance and target acquisition (ISTAR) systems is likely to increase. This is not purely a function of communication limitations, but also the ability to respond and the range of the response systems. The M198 155-millimeter artillery system has a maximum range of 30 kilometers. Not all acquisition systems and surveillance devices will be in range of these response systems. The effective range of a psychological operations loudspeaker team may be 500 meters, whilst the ability to conduct leaflet drops from a C130 or UH-60, may take at least 90 min to prepare and coordinate with the Air Tasking Cycle. The complexity of lethal and non-lethal operations coordination, will necessitate a staff function that is able to respond quickly, but more importantly, appropriately to the information provided by Information Surveillance Target Acquisition and Reconnaissance (ISTAR) systems. Therefore for the

knowledge edge to be attained, effective sensor to shooter links will require a dedicated staff cell that is responsible for the de-confliction of effects. This cell will minimize the time from detection to effect, but will ensure that the response is appropriate for the target and nature of warfare.

Why poor decisions are made

Gary Klein in *Sources of Power* identifies three main causes of why people make poor decisions: firstly lack of experience, secondly lack of information, and thirdly due to an individuals mental simulations based up the persons mental model.³ All of these aspects are fundamental to the attainment of the knowledge edge, therefore overcoming them will significantly enhance the fighting power of the ADF.⁴

The lack of information will be overcome by the continued increase in information systems and ISTAR assets to provide battlespace awareness. Overcoming the lack of experience and faulty mental simulation process will require a change to the present way which the ADF conducts effects management, and how it presently conducts lethal and non-lethal effects integration.

Exercise Rainbow Serpent and Operational STABILIZE have both highlighted the lack of experience that presently exist in the coordination on non-lethal effects, specifically information operations within a multi-national environment. The formation of a dedicated staff function, responsible for the coordination of lethal and non-lethal effects throughout the entire spectrum of conflict is needed for this to happen. The formation of such a cell will overcome these deficiencies, as well as change the mental models that presently exist in the headquarters environment, as to the responsibility for effects management.

Effects Coordination Center

The JOSCC at the Brigade and Divisional level is the ‘center of gravity’ for the coordination of all forms of offensive fire support, either joint or combined at the tactical level. This includes the responsibility for the prosecution of lethal and non-lethal targeting as already explained in Chapter 2. The JOSCC employs the established doctrinal D3A targeting process, which has been established to be compatible with the non-lethal targeting procedures, through operation in Bosnia and East Timor. It has also been described, by the Exercise Rainbow Serpent after action review, that the current adhoc IO procedures conducted by the ADF, for the coordination of non-lethal effects, is inefficient and will not add to the attainment of the knowledge edge. The establishment therefore of an Effects Coordination Center (ECC) based upon the existing structure of the JOSCC, and enhanced by specialist staff from the respective lethal and non-lethal communities, will assist in overcoming some of these recognized deficiencies. The advantages of the adoption of such a staff structure at both the Brigade and Divisional level will,

1. Improve the attainment of the commanders targeting objectives;
2. More effectively use the existing JOSSC staff structure throughout the entire spectrum of warfighting;
3. Increase the efficiency of lethal and non-lethal resources, maximizing the potential payoff from the use of both lethal and non-lethal force;
4. Ensure a systems approach to effects management;
5. Change the mental models that currently exist regarding the employment of lethal force in non-lethal environments;
6. Increase the quantity of sensors able to be dedicated toward both lethal and non-lethal effects, through a better linkage of collection requirements; and
7. Improve the level of experience related to information operations in the attainment of military objectives.

Operational Concept of the ECC

The ECC will be responsible for the planning and coordinating the full spectrum of lethal and non-lethal effects, the selection and acquisition of targets, providing command and control (C2) to traditional field and target acquisition artillery units, and preliminary combat assessment. The staff will provide a multifunctional staff cell capable of lethal and non-lethal targeting, planning, effects coordination and planning shaping operations and will serve at the brigade level as the Field Artillery battalion headquarters. At the Divisional level, the ECC will be formed upon the JOSCC and form an integral component of the DJFHQ staff.

The ECC will include the capability to establish sensor to actor communications and responses when the situation allows, enabling the engagement of time sensitive targets. These directly linked sensors will be capable of being monitored by the ECC for the purpose of the coordination of all lethal and non-lethal effects. The ECC will not perform the function of an All Source Cell, but will function closely with that organization on a distributed information network.

Command of the ECC

Brigade. The ECC at the Brigade level will be organic to the Field Artillery battalion headquarters and will be supplemented by the target acquisition (TA) headquarters from the Target Acquisition Battery as well as other specialist staff.⁵ The TA augmentation will form the nucleus of the targeting cell in the ECC as well as supplement the time sensitive targeting cell in the effects operational cell. The functions of administration, troop movement and logistical support need to be broken away from the FA battalion headquarters to allow it to focus on the responsibilities of the ECC. The

commanding officer of the FA Battalion will command the ECC as well as the residual administrative and logistical component of the battalion headquarters. The commanding officer of the FA Battalion becomes the Brigade commanders principal effects advisor.

At the Brigade level, the ECC will have the following primary functions:

1. Lethal and Non-lethal targeting;
2. Limited shaping operations planning and execution, depending upon assets available; and
3. Effects management, which includes the management and execution of the attack guidance matrix which includes the IO synchronization matrix, coordination of all offensive fire support systems, airspace de-confliction and the conduct of time sensitive targeting.

Table 1. Staff Function for the Brigade Effect Coordination Center

Staff Function at Brigade Level	Functional Area
Targeting Cell	S2 Effects*
	Civil Affairs officer
	Psychological Operations officer
	Public Affairs Officer*
	Electronic Warfare officer
	Legal officer*
	JOSCC Air Rep*
	Aviation Battalion Liaison Officer
	Non-lethal effects / IO officer*
	Lethal effects officer*
Effects Management Cell	JOSCC Reps*
	Time Sensitive Targeting Staff*
	Meteorological/Weather staff*
	ADA Liaison Officer*
	IO Staff*
	Shaping cell (if required)
* Denotes essential for all operations	

Table 1 provides an example of the type of functions that would need to be represented at the Brigade level ECC. Not all of these function may be present, and so the staff function and level will fluctuate depending upon the available assets. At the

Brigade level, the commander will often be implementing the IO campaign from higher. However, this does not obviate the requirement for the Brigade staff to have an IO plan and objectives. Non-lethal effects coordinated at the lowest possible level will result in the enhancement to the lethal effect available to the brigade. Non-lethal effects at the brigade level will enable the commander to shape the battlespace, without the need to resort to lethal or kinetic non-lethal effects.

Division. The employment of the ECC at the divisional level is similar to that of at the Brigade level, except it has a broader responsibility for the coordination of joint offensive support assets as well as the coordination of assets for cross boundary operations, such as Armed Reconnaissance Helicopters or ATACMs employment. The Divisional ECC is commanded by the JOSCC commander at the Divisional Headquarters, with the following primary functions:

1. Deciding on lethal and non-lethal targets and their effects to suit the commanders intent;
2. Coordinate sensor and collection management with the All Source Cell to ensure the adequate collection of information as per the attack guidance matrix, which includes the IO Synchronization matrix;
3. Facilitate the conduct of targeting boards;
4. Plan and execute the engagement of lethal and non-lethal effects with joint, combined and coalition assets;
5. Coordinate electronic effects throughout the divisional area of operations to reduce electromagnetic fratricide;
6. Conduct time sensitive targeting; and
7. Conduct combat assessment in accordance with the measures of effectiveness decided during the targeting cycle or as determined by the commander.

The Divisional JOSCC staff is able to be supplemented by the existing Target Acquisition Battery headquarters in its traditional role as time sensitive targeting as well as plans staff for the JOSCC targeting cell.⁶ The JOSCC at the divisional level has no command and control capability of the subordinate brigade artillery organizations. The

divisional ECC will however work closely with the brigade ECC in ensuring the synchronized execution of the effects plan. The divisional ECC will be able to:

1. establish divisional wide lethal and non-lethal guidance;
2. establish the public information and psychological operations themes;
3. establish guidance for the conduct of civil affairs and operational security; and
4. when the headquarters is acting as a Joint Forces Commander, will be the principle approving authority of tactical and operational level psychological operations products.

Table 2. Staff Function for the Divisional or JTF Effect Coordination Center

Staff Function at Divisional or JTF Level	Functional Area
Targeting Cell	JOSCC Targeting Officer
	J2 Effects
	Civil Affairs officer
	Psychological operations officer
	Public Information officer
	Electronic Warfare officer
	Deception officer
	Operations Security Officer
	Legal officer
	JOSCC Air Representative
	Special Forces Representative
	Aviation Battalion Liaison Officer
	Non-lethal effects / IO officer
Effects Management Cell	JOSCC Lethal effects officer
	JOSCC Reps
	Time Sensitive Targeting Staff
	Meteorological/Weather staff
	ADA Liaison Officer
	IO Staff
	Aviation Brigade Liaison Officer
	Naval Fire Support Staff (if assigned)
	Offensive Air Support Staff

Table 2 depicts the standard functions of the Divisional or JTF level ECC. Some of the staff function listed may be performed by the same person, however the point to highlight is the range and breadth of function available to the commander though the

ECC. The ECC now provides the headquarters structure the ability to overcome the deficiencies identified in the ABCA Coalition Exercise Rainbow Serpent, and has already proven to be effective on operations in Bosnia and East Timor. The ECC provides one point of contact for all effects management within the headquarters.

The Divisional ECC will be able to physically and psychologically shape the battlespace through the employment of lethal and non-lethal effects. The strength of the ECC is the established doctrinal and staff relationships that already exist in each brigade and the divisional headquarters. The ECC will be able to support operations through the entire spectrum of the operations as per figure 1, using the JOSCC staff across the full spectrum of warfighting, not just in the lethal application of force. The Divisional ECC will be able to integrate precision engagement from both lethal, kinetic non-lethal and non-lethal effects to shape the battlespace to achieve strategic objectives. The divisional ECC will utilize the established procedures for working with naval and airforce assets, as well as the employment of ATACMs and the Armed Reconnaissance Helicopters, in accordance with the attack guidance matrix, for time sensitive targets. The ECC will provide the necessary linkages for reach-back effects that will need to be coordinated at the strategic and national-strategic level. The divisional or Joint Task Force ECC will be the focal point for the coordination of lethal and non-lethal effects to capitalize on any strategic strike or national strategic public information campaign addressed towards the theatre of operations. This will ensure at all times that the divisional / Joint Task Force Commanders objectives are synchronized at all levels of command to achieve the operational and strategic ends.

The RMA debate has focused on information technology, precision weapons systems and improvements in ISTAR capabilities. The debate has centered around how these system of systems can help maneuver forces reduce casualties, attain a quick victory, reduce the size of cold war defense forces and move away from massing forces to massing effects. The RMA debate has primarily been driven by the changes made in the US Forces and the US defense weapon industry, based upon the belief that through technology, decision superiority can be obtained. This approach lacks the understanding of the need for the human element to process information to produce knowledge and understanding of the situation.

The Australian RMA can be linked to the knowledge edge. If knowledge then is a state of knowing; having cognition and providing insight, then the knowledge edge is attaining cognition and insight faster than an a given belligerent. No information technology or artificial intelligence computer can provide insight or cognition because the problem is presented as a closed problem space generated from a set of objects, relations and properties.⁷ Insight can only be achieved through human cognition. The Headline Experiments reliance upon a computer systems to automatically allocate requests for response, will be counter-productive in achieving the knowledge edge, and highlights the flaws in the sensor to shooter systems as described above. This emphasis on sensor to shooter systems with no discussion towards effect, continues to reinforce the bias towards lethal effects and the status quo, highlighting a poor appreciation for the changing nature of warfare.

The need is for an organization structure that harnesses the power of information technology but not to be dominated by it. It must also harness the power of human

cognition brought about by training, doctrine and education to produce the knowledge edge. The degree of truly revolutionary change and the structure of the ADF for the Enhanced Combat Force and Army After Next is only limited by the mental models and level of experience that presently exist. These same mental models have prevented any substantial reorganization of headquarters structures in the past fifty years. The adoption of an ECC will provide the ability to link lethal and non-lethal effects whereas presently this does not exist. The lack of any credible IO capability in the Brigade 2015 structure reinforces the present mental models of military operations being conducted in only one part of the threat spectrum and fails to recognize the changing nature of warfare. The ECC will enable shaping operations to be conducted throughout the entire battlespace, synchronized throughout the operational spectrum at the tactical, operational and strategic level.

Notes

¹ For a detailed explanation of professional mastery see, Chapter 5 of LWD 1, 1998.

² Australia Department of Defence, Doctrine Publication, *Land Warfare Doctrine 1: The Fundamentals of Land Warfare* (Puckapunyal, Victoria: Doctrine Wing CATDC, 1998), Commonwealth of Australia, 6-12.

³ Gary Klein, *Sources of Power, How People Make Decisions* (Massachusetts: Massachusetts Institute of Technology, 1999), 274

⁴ Fighting power as referred to in LWD 1, consists of the physical dimension with capabilities, the moral dimension including leadership, values and legitimacy and the intellectual dimension which includes professional mastery and innovative concepts. The ability for innovative concepts to be fostered involves the ability to recognize the mental models that exist in an organization and overcoming those through broader experience, and fostering a learning organization environment.

⁵ The target acquisition battery refers to the weapon locating troop headquarters from 131st Locating Battery. The term target acquisition battery is used for the US audience of this paper.

Notes

⁶ The target acquisition battery refers to the headquarters of 131st Locating Battery. The headquarters of 131st Locating Battery traditionally deploy as part of the JOSCC and perform the function of time sensitive targeting, formerly counter battery fire, as well as augmenting the plans staff in the JOSCC for conducting lethal and non-lethal effects.

⁷ Klein, *Sources of Power: How People Make Decisions*, 132

Chapter 4

Validation and Conclusion

Developments in weapons, tactics, strategy, and a host of other factors will require command systems to match. The latter are thus reflections of the art of war as it exist in any given period; they are affected by, and in turn affect, the state of that art.

Martin Van Creveld

Currently ADF doctrine states that a combined lethal and non-lethal effects system is the best approach for the application of combat power. The emerging emphasis on IO throughout the entire spectrum of operations, and especially during MOOTW operations, increase the need for a defined effects management process and organization. The ability to harness the legacy organizations that exist at the brigade and divisional level, already practiced in the targeting process provides the Headline Experiment the opportunity to truly synchronize the lethal and non-lethal effects.

Martin Van Creveld's quote above highlights the relationship between the developments in technology and weapons systems and how they impact changes in tactics and strategy. Creveld states that there will also be the need for a command system to accompany these changes in weapons systems, tactics and strategy. This command system are therefore "reflections of the art of war, as it exist in any given period."¹ This

relationship to time is important, as it indicates that as technology and the theory of warfare changes, the command systems which govern the art of war must also change and adapt to the new environment.

The growing importance of non-lethal engagements is increasing to reflect the shift towards the left of the threat spectrum, as per figure 1. The ECC provides the ability for the ADF, and in particular the Australian Army, to enable effects to be managed not only with non-lethal means but across the entire spectrum of conflict.

Crevelld also states in the above quote that “they are affected by, and in turn affect, the state of that art.”² This is the where the relationship between the RMA and organization change potentially can offer the ADF a significant change in the conduct of effect management.

The RMA consist of a system of systems, resulting in a discontinuous development in military affairs. These systems include enhancements to technology, doctrinal innovation and organization adaptation. By focusing upon only one of these aspects a revolutionary event will not occur. The ECC offers the Australian Army the ability to uses a systems approach to the modernization of the effects management process. By updating technology, weapons and tactics without updating the command systems, the real benefit of modernization or revolution will not be realized.

Validation

Exercise Rainbow Serpent was a test of the ABCA command and control procedures and information operations in an ABCA coalition MOOTW scenario. This exercise and many conducted like it through the ABCA standardization agreements, provide the doctrinal and organizational interoperability desired by Australian to operate with the US

and other key allies. During Exercise Rainbow Serpent it was determined that the divisional JOSCC in DJFHQ was:

1. Inadequately manned and structured to perform the coordination of lethal effects with lower formation.
2. There was insufficient ability to perform Information Operations until late into the exercise, resulting in disjointed and unsynchronized non-lethal engagements.
3. The ability to synchronize traditional artillery related activities, such as survey, meteorology and targeting was hindered by the lack of communication with lower formations.³

The validation of the non-lethal effect campaign conducted by the divisional headquarters on Operational STABILIZE, highlights the importance of the need for the non-lethal effects campaign to be linked closely with the existing doctrine that exist in the JOSCC.

The JOSCC structure adopted by the divisional headquarters is unique to Australia. The adoption of the ECC at both the divisional and brigade JOSCC will overcome these problems, allowing for the coordination of functions throughout both tactical and operational spectrums. This will avoid problems such as those encountered on Rainbow Serpent, maximize the operational experience and lessons learnt from Operation STABILIZE, and provide the ABCA countries with an organization framework which is familiar to them for future coalition operations.

The additional capabilities which the Headline Experiment are using to enhance the Brigade 2015 structure will place an increased burden upon the requirement for the coordination of lethal and non-lethal fires, but also that these effects are synchronized through the one cell. The increased capabilities include armored reconnaissance helicopters, multi-barreled rocket launchers, and ATACM style tactical missiles.⁴ The US Army, until recently was the only ABCA country that has the triad of weapons being

looked at by the Headline Experiment. The United Kingdom has recently acquired the AH-64D Apache and has had the MLRS since the early 1990's. These systems were designed to conduct deep operations against Soviet reserve forces, in an attempt to shape the decisive close combat operations. These systems are now being employed in a similar fashion, except against different threat models and with a different geo-spatial battlespace. In order for these systems to be employed with a high degree of success and survivability, the US Army employs a Deep Operations Coordination Cell (DOCC) at the Corps Headquarters level. This cell is being incorporated into the US divisional fire support cell as part of the Interim Divisional Combat Team. The DOCC has the sole function of planning corps deep operations and works closely with joint assets for the conduct of Joint Suppression of Enemy Air Defenses (JSEAD), and insertion of Special Force teams etc.

The Headline Experiment intends to employ the same assets but at the Brigade level, which still require the same degree of protection provided from JSEAD. The ADF has no JSEAD assets available for the conduct of these missions. The traditional coordinators of these types of missions is the JOSCC. In the Brigade 2015 structure it will become vital for the JOSCC to not only take an active part in the coordination of the brigade and divisional aviation assets, but ensure their tasks are synchronized with all available non-lethal assets as well. The requirement to coordinate assets with these new capabilities will increase not decrease like most believe.

Conclusion

Potentially the largest hurdle to the adoption of the ECC is the institutional inertia and the mental models that currently exist about the employment of lethal and non-lethal

effects. Most believe that IO is the sole responsibility of the intelligence corps; in contrast IO in the US Army is the responsibility of US Special Forces Command. The ADF has one psychological operations platoon and no formalized civil affairs units, although civil affairs units were deployed extensively during both Operations SOLACE in Somalia and STABILIZE in East Timor.⁵ Deception, Operations Security and Public Affairs is currently a operations staff function, and the physical destruction component of IO is normally associated with Electronic Warfare, particularly electronic attack, which is the responsibility of the electronic warfare units and liaison officers. The mental model that the intelligence corps is responsible for IO continues to create doctrinal and organization dilemma for the employment of non-lethal effects. The lack of a coherent structure for Operation STABILIZE, forced the divisional headquarters to perform a make shift staff cell. Fortunately this was based around the D3A targeting process and performed by JOSCC personnel.

Another mental model is one that the adoption of an ECC concept will see dilution in the ability to coordinate the offensive aspect of lethal effects. This highlights the complete ignorance of the ability to leverage the benefits of the entire spectrum of effects using existing kinetic energy weapons and combining these effects for employment in MOOTW scenarios. The adoption of the ECC will provide the JOSCC organization a dedicated role in the entire spectrum of conflict and not limit it to its current misemployed as civil affairs liaison officer in MOOTW scenarios. It will also avoid neglecting the requirement for planning of lethal effects, even whilst operations are being conducted in a MOOTW environment. The potential for escalation from peace-keeping

to peace-enforcement is always present and can be attested to by the numerous UN mission being conducted in Africa at the moment.

The ADF is presently at a cross-roads in the development of future capabilities. The Australian Army can remodel units and keep the headquarters structures in their present shape and hope they will be able to cope with the changing nature of warfare. The alternative is to adopt the systems approach, and ensure that the command systems reflect the art of war being developed through the Headline Experiment. The modified headquarters will in-turn add to that art.

The adoption of the ECC will not have a revolutionary discontinuous change in the nature of operations. The ADF has always attempted to combine lethal and non-lethal effects, except the doctrine and capabilities were not mature enough for this to happen. The ADF still has a long way to go for this to occur. The adoption of the ECC will greatly facilitate the attainment of this aim.

The ADF is capable of achieving a revolutionary event if it recognizes that all components of the RMA must be combined to achieve that event. No amount of additional technology, without the changing in command systems, accompanied with new doctrine can ever lead to a RMA.

The technology and major weapons systems which the ADF currently has will still be in service for many years to come. The ADF is currently at the same relative point the German Army was in the inter-war period and Napoleon was after the French revolution. The desire for change and the recognition of the need for change is evident. Recent operational service in East Timor has reinvigorated the government and public in the debate about the defense forces. The Headline Experiment must break free of the

existing mental models and explore revolutionary way of conducting business, just as the German General Staff and Napoleon broke free of the mental models that exist at their time. The ADF must ask itself whether it wants to maintain the current staff structure that served it so well in the last war, and be like the French in 1940, or whether a new approach is needed. A staff structure which reflects the changing nature of warfare with the emphasis towards full spectrum engagement and employment is one that will lead the Australian Army into the twenty-first century, not remain in the past.

Notes

¹ Martin Van Creveld, *Command in War* (Cambridge, Massachusetts: Harvard University Press, 1985), 10.

² Creveld, *Command in War*, 10

³ Lt Col A M Hayward, "Exercise Rainbow Serpent 1998," *Chief Evaluator's Report*, HTML, <http://leav-err.army.mil/>: American British Canadian Australian Primary Standardization Office, p20, 26, 29.

⁴ Combined Arms Training and Development Centre, CD-ROM, "Headline Experiment," (Puckapunyal, Victoria: CATDC, 2/99), Brief to CASAG 21 Oct 1999

⁵ Both of these civil affairs tasks were performed by the command and control element of the direct support artillery units assigned to the forces deployed. This highlights the desperation of artillery units to be employed in full spectrum operations, yet the inability to break the mental model that focus only on the lethal application of effects.

Appendix A - What is the Revolution in Military Affairs?

A military revolution is what occurs when the application of new technologies into a significant number of military systems combined with innovative operational concepts and organizational adaptation in a way that fundamentally alters the character and conduct of conflict.¹ The United States Department of Defense's Offices of Net Assessment defines an RMA as a major change in the nature of warfare brought about by the innovative application of technologies which, combined with dramatic changes in military doctrine and operational concepts, fundamentally alters the character and conduct of operations.² The central theme in these two definitions is to what extent technology alone can be credited with an RMA, and whether the ADF has fully grasped the need for a systems approach to the implementation of new technology.

Anthony Cordesman points out that "technology will only be valuable to the extent it is integrated into an effective overall force structure."³ Andrew Krepinevich also supports the argument that the RMA is a system, whereby technologies will make the RMA possible but technology alone is insufficient to revolutionize the military. "To realize their full potential, these technologies typically must be incorporated within new processes and executed by new organizational structures."⁴ James Fitzsimmons and Jan Van Tolz indicate there are three conditions that must be met before an organization can fully realize the potential of the RMA: technological development, doctrinal innovation, and organizational adaptation.⁵ Jeffrey Cooper has a similar relationship to the components of the RMA, identifying four components: "operational innovation, organizational adaptation, evolving military systems as well as emerging technologies."⁶

It is clear that a RMA does not consist solely of technological improvement and enhancement, or simply the replacement of new combat systems, but a far wider application of a systems approach to innovation; also, that organizational change is an essential element to achieving true revolution in military affairs.

The ADF recognizes the RMA consists of a systems approach involving technological improvement through enhanced command, control, communication and computer processing, improved intelligence integration of sensors, the development of doctrine, strategies and organizational changes.⁷ Unfortunately, during the amplification of the RMA, the Land Warfare Doctrine 1 (LWD 1) only includes discussion of technology, reinforcing the belief that technology is the fundamental driver of changes in the military. Future draft copies of both LWD 1 and the Future Land Warfare 2030 documents do not make reference to the RMA due primarily to the inability to identify any significant changes that have occurred from such a revolution.⁸ The danger is that the ADF will fail to recognize that a revolution may actually be underway. Modern technology has been steadily increasing in strength, precision and lethality since the Vietnam War. Computer and communication systems combined with Satellite imagery and navigation systems give commanders virtually unprecedented ability to communicate, navigate and provide situation awareness. What has happened is the ADF has failed to fundamentally review the linkage between the need for technology combined with organization and doctrinal changes to bring about revolutionary change, instead of passively waiting for the revolution to occur. One explanation for this may be the subconscious replacement of the term RMA with Situational Awareness or Decision

Superiority. One of the hardest phenomenon for the military is to recognize when change is occurring and then being able to respond quickly enough to that change.

Notes

¹ Andrew F. Krepinevich, "Cavalry to Computer: The Pattern of Military Revolutions," *The National Interest* Fall (1994): p 30.

² Earl H. Tilford, Jr, *The Revolution in Military Affairs: Prospects and Cautions*, US Army War College, Carlisle Barracks, PA: Strategic Studies Institute, July 15, 1995, p 1.

³ Anthony Cordesman, *Compensating for Smaller Forces: Adjusting Ways and Means Through technology*, Strategy and Technology, Carlisle Barracks, PA: Strategic Studies Institute, April 1, 1992, p. 8.

⁴ Krepinevich, *Cavalry to Computer: The Pattern of Military Revolution*, p 36

⁵ James R. Fitzsimmons and Jan M. Van Tolz, *Revolutions in Military Affairs*, *Joint Force Quarterly*, Spring 1994, pp. 25-26.

⁶ Jeffrey Cooper, *Another View of the Revolution in Military Affairs*, Carlisle Barracks, PA: Strategic Studies Institute, July 15, 1994, p. 19.

⁷ Commonwealth of Australia (Australian Army), *Land Warfare Doctrine 1: The Fundamentals of Land Warfare*, Doctrine Wing CATDC, 1998, p 4-5.

⁸ Future Land Warfare 2030 document, draft dated April 2000.

Appendix B - Lethal and Non-lethal Effects integration

Targeting Objectives

The objectives of targeting are currently stated as Limit, Disrupt, Delay, Divert, Destroy and Damage. ¹ These terms are suitable for both lethal and non-lethal effects.

Table 3 Targeting Process

Traditional Targeting Outcomes		Non-Lethal / IO Targeting Outcomes
Determine what or who to target	DECIDE	Determine who or what to target
Execute collection plan Update PIR's and IR's Update High Pay of Target List	DETECT	Acquire targets Update PIR's and IR's
Execute attacks using the attack guidance determined in decide phase	DELIVER	Engage targets with IO products determined in decide phase
Conduct assessment to determine result of attack. Make re-attack recommendation	ASSESS	Assess effectiveness of IO products: media campaign, leaflet drops, CA, CMO activities, and computer network attack.

Table 3 indicates that whilst present differences in doctrine exist in the area of what stages actually constitute the IO planning and execution process, they can be matched to the D3A targeting process, aiding in the synchronization of staff procedures and ensuring that targeting objectives are not being jeopardized by either lethal effects or non-lethal message and themes. Table 4 provides a comparison between the traditional lethal targeting objectives and the doctrinal effects and compares them to the IO targeting objectives. This table shows the similarity between both the lethal and non-lethal effects.

It also indicates the benefit able to be achieved through the close synchronization of the targeting objectives, allowing a much greater effect to be achieved through a smaller application of lethal force. This has particular benefits during peacekeeping or peace-enforcement operations when limited lethal systems, such as artillery or fixed wing aviation, is available in theatre.

Table 4 Targeting Objectives

Lethal Targeting	Objectives	Non-Lethal / IO Targeting
Remove the unit or capability from the order of battle.	DESTROY	Remove the unit or capability from the order of battle. Normally limited to Command and Control targets.
Alter the time of the units arrival.	DELAY	Provide confusing and conflicting information to decision-makers to delay timely decision.
Prevent the cohesive use of the enemy combat systems.	DISRUPT	Reduce the internal cohesion of a faction, belligerents or party through the lowering of morale and increasing levels of mistrust in units.
Tie up critical assets	DIVERT	Gain cooperation or assistance to divert assets.
Reduce the flexibility of the enemy through the destruction of critical assets	LIMIT	Minimize the influence of the belligerents, local factions, local political groups or the civilian population.

Targeting Methodology and Non-Lethal Effects

Decide. The decide phase is the clear identification of high value and high payoff targets in accordance with the targeting objectives determined from commanders guidance. It is critical for the commanders to have clear targeting objectives about what effect is to be achieved on the belligerents. In the past, traditional lethal targets have been focused on the ‘what’ (hard targets), while IO and non-lethal effects are more focused on ‘who’ (soft targets). During Task Force EAGLE high value targets for both lethal and

non-lethal attack were listed on the one form to show which targets were critical for mission success. Table 5 describes the type of targets identified and how the D3A doctrine can be applied to non-lethal targeting during the decide phase of targeting.

Table 5. High Value Target List

Limit	Disrupt	Delay	Divert	Destroy	Target Set	HVT	HVT 1	HVT 2
					GOV'T A			
			X		City Govt	X	Mayor	Deputy Mayor
			X		Police	X	Regional	City
					GOV'T B			
			X		Mayors	X	Mayor X	Mayor Z
			X		Community Leaders	X	Leader A	Leader B
					MEDIA			
X					Radio Stations	X	Radio R	Radio S
					MILITARY			
	X				Field Artillery	X	Site 1	Site 2
					Air Defense			
			X		Unit Commanders	X	Corps Comd	Brigade Comd
					OTHER			
	X				Crowds	X	Serb	Fed
	X				Buses			
					Loud Speaker Vehicle			

Source: Center for Army Lessons Learn Newsletter 99-2, Task Force EAGLE Information Operations, *IO in a Peace Enforcement Environment*, January 1999, p 74.

Once the high value targets are determined, high payoff targets are determined for each phase of the operation to support the commander intent.² High Payoff targets are broken down into elements which will be directly targeted by assets. Table 6 illustrates the breakdown of both lethal and non-lethal high payoff targets during the decide phase.

Table 6. High Payoff Targets

Priority	Category	Target
Phase 1 and 2: 1	Government A Crowd Formation	Town Mayor Radio Station R and S Siren 3 Location Loud speaker vehicles Populace
Phase 1 and 2 2	Government B Crowd Formation	Area Mayors X and Z Community Leaders A and B Buses Populace
Phase 1 and 2 3	Military Mobilization	ADA Sites Field Artillery Site 1 and 2 Corps Commanders
Phase 3 1		
All Phases 4	Other targets	Blockade Vehicles Barrier Material

Source: Center for Army Lessons Learned Newsletter 99-2, Task Force EAGLE Information Operations, *IO in a Peace Enforcement Environment*, January 1999, p 74.

As the spectrum of warfighting changes from the left of the scale in Figure 1 to the right of the scale, the target categories will include more traditional military targets. However in General Krulak's three block warfare scenario, the requirement to conduct full spectrum targeting operations will continue and increasingly need to include more non-traditional targets to leverage the full benefits of limited firepower. Operations in urban terrain will necessitate a greater use of non-lethal effects. When these effects are to be lethal, they need to be precise, effective and synchronized not only with ground maneuver, but also with the remainder of the tactical, operational and strategic objectives.

The use of non-lethal effects to target the populace, local government leaders and support groups will multiply the effect of non-lethal force. This enables an austere early

entry force to maximize its firepower potential, whilst relying upon reach-back for additional lethal effects if required.

Detect. The ability to detect targets is critical to the targeting function. The collection systems for both lethal and non-lethal effects are the same. Specific IO collection assets such as Civil Affairs, Human Intelligence, and Psychological Operations, teams augment the collection assets of the Brigade and Division. This establishes the IO planner as a critical component of the targeting team.³

Deliver. During the deliver stage, assets are allocated against appropriate Named Areas of Interest and Target Areas of Interest, in order to collect information about the targets. The prioritization and compilation of this information is displayed on an Attack Guidance Matrix, as described in TIB 77 Annex D to Chapter 2. This form provides the Who, What, When, How and the desired effect for each target. This format has been used both on the US Operation JOINT GUARD and the ADF Operation STABILIZE in East Timor.⁴ Table 7 provides an example Attack Guidance Matrix from Task Force EAGLE , displaying both lethal and non-lethal effects on the one form.

Assess. The assess function is one of the most difficult to quantify for both lethal and non-lethal targeting. A clear understanding of the endstate is required as well as a detailed knowledge of the collection systems to be able to determine changes in patterns or target destruction. As with the detect phase, all assets are synchronized in the collection effort to assess the outcomes of the targeting effort. Measure of effectiveness need to be determined for both lethal and non-lethal targets with the potential for new effects based definitions to be determined based upon the mission.

Table 7. Attack Guidance Matrix

Target Category	High Payoff Target	When	How	Effect	Remarks
CROWD	Mayor	Phase 1 and 2	Bilateral (BILAT) Unit deployment Msg: CA, CB, Psyops	I, C	Two letter designator for specific IO Messages and Themes
	Radio Station	Phase 1	BILAT Psyops	W	
	Loud Speaker Vehicle	Phase 2	Unit Patrol	H	
	Populace	Phase 1 and 2	Psyops radio	I	
Military Mobilization	Corps Comds	Phase 1 and 2	BILAT Joint Military Commission	D	Effects Different For lethal or non-lethal targeting
			Msg: MA, MB	H	
	ADA	Phase 3	Arty, Attk Avn	S	
	FA Site 1	Phase 3	Arty, Attk Avn, CAS	N	
	FA Site 2	Phase 3	Arty, Attk Avn, CAS	N	
		Effects			
	S	Suppress	C	Co-opt	
	N	Neutralize	W	Warn	
	I	Influence	H	Hinder	

Source: Center for Army Lessons Learn Newsletter 99-2, Task Force EAGLE Information Operations, *IO in a Peace Enforcement Environment*, January 1999, p 76

Notes

¹ US Department of Defense, field Manual, *FM 6-20-10 Targeting* (Washington, D.C.: US Government Printing Office, 1995). These terms are not specifically stated in ADF targeting doctrine but are implied.

Notes

² For a complete description of the targeting process and the definitions of high value and high payoff targets see FM 6-20-10 or TIB 77.

³ Center for Army Lessons Learnt, "Task Force Eagle Information Operations," *CALL Newsletter* (US Army Training and Doctrine Command, Fort Leavenworth.) 99-2, Jan 99 (January 1999): 8

⁴ During Operation STABILIZE this form was referred to as a synchronization matrix, and not guidance matrix. The utility of the form however was proven to be successful and mirrored those procedures laid down in TIB 77.

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